WHAT IS CLAIMED IS:

1. A method for selectively separating at least one component from a multi-component fluidic sample, said method comprising:

introducing said multi-component fluidic sample into a micro-fluidic device having a fluid flow path and at least one micro-valve comprising a phase reversible material; and

contacting said introduced multi-component fluidic sample with said microvalve under conditions sufficient for said at least one component to at least move into said microvalve while the remaining components of said multi-component fluidic sample remain outside of said microvalve;

wherein said at least one component is selectively separated from said multi-component fluidic sample.

2. The method according to Claim 1, wherein said phase reversible material is a phase reversible polymer.

3. The method according to Claim 1, wherein said phase reversible material is thermo-reversible.

4. The method according to Claim 1, wherein said method further comprises modulating the porosity of said microvalve at least once during said method.

5. The method according to Claim 1, wherein said at least one analyte is a low molecular weight analyte.

6. A method for selectively separating components having a molecular weight below a threshold value from a multi-component fluidic sample, said method comprising:

introducing said multi-component fluidic sample into a micro-fluidic device having a fluid flow path and at least one micro-valve comprising a phase reversible

material having a porosity that can be modulated in response to an applied stimulus; and

contacting said introduced multi-component fluidic sample with said microvalve under conditions sufficient for said components of said multi-component fluidic sample having a molecular weight below said threshold value to at least move into said microvalve while the remaining components of said multi-component fluidic sample remain outside of said microvalve;

wherein said components having a molecular weight below a threshold value are selectively separated from said multi-component fluidic sample.

7. The method according to Claim 6, wherein said phase reversible material is a phase reversible polymer.

8. The method according to Claim 6, wherein said phase reversible material is thermo-reversible.

9. The method according to Claim 6, wherein said method further comprises modulating the porosity of said microvalve at least once during said method by applying said stimulus to said microvalve.

10. The method according to Claim 9, wherein said stimulus is a change in temperature.

11. The method according to Claim 6, wherein said threshold value is about 1000 daltons and said method is a method of desalting said multi-component fluidic sample.

12. A method for concentrating a multi-component fluidic sample with respect to at least one constituent thereof, said method comprising:

introducing said multi-component fluidic sample into a micro-fluidic device having a fluid flow path and at least one micro-valve comprising a phase reversible

material having a porosity that can be modulated in response to an applied stimulus; and

contacting said introduced multi-component fluidic sample with said microvalve under conditions sufficient for components of said multi-component fluidic sample having a molecular weight below a threshold value to at least move into said microvalve while the remaining components of said complex fluidic sample remain outside of said microvalve;

wherein said multi-component fluidic sample is concentrated with respect to at least one constituent thereof.

13. The method according to Claim 12, wherein said phase reversible material is a phase reversible polymer.

14. The method according to Claim 12, wherein said phase reversible material is thermo-reversible.

15. The method according to Claim 12, wherein said method further comprises modulating the porosity of said microvalve at least once during said method by applying said stimulus to said microvalve.

16. The method according to Claim 15, wherein said stimulus is a change in temperature.

17. A kit for use in selectively separating at least one component from a multi-component fluidic sample, said kit comprising:

(a) a micro-fluidic device having a fluid flow path and at least one micro-valve comprising a phase reversible material; and

(b) at least one of:

(i) instructions for practicing the method of Claim 1; and

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(ii) means for obtaining instructions for practicing the method of Claim 1; wherein said instructions and means for obtaining the same are recorded onto a substrate.

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18. The kit according to Claim 17, wherein said substrate is a printable substrate.

19. The kit according to Claim 17, wherein said substrate is an electronically recordable substrate.

20. The kit according to Claim 17, wherein said kit further comprises a phase reversing means.